

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-18 (Canceled).

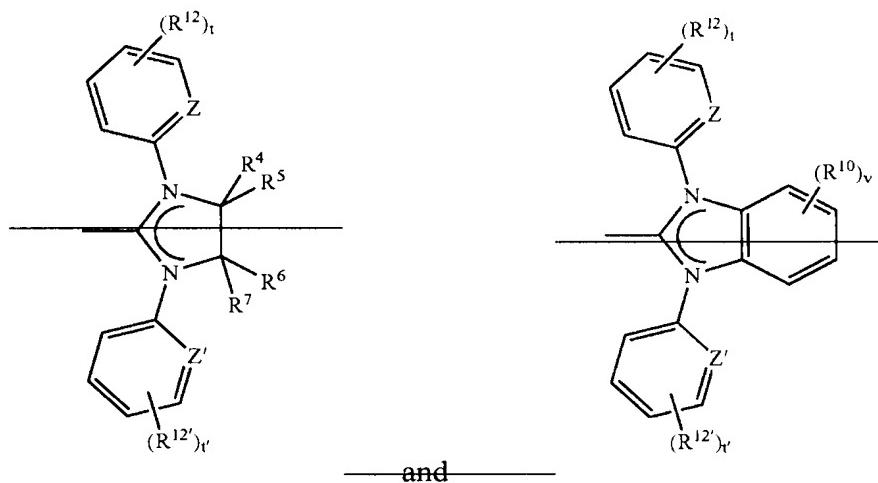
Claim 19 (Currently Amended): An organic light-emitting diode comprising at least one uncharged transition metal ~~complexes~~ complex of the formula (I) comprising at least one carbene ligand



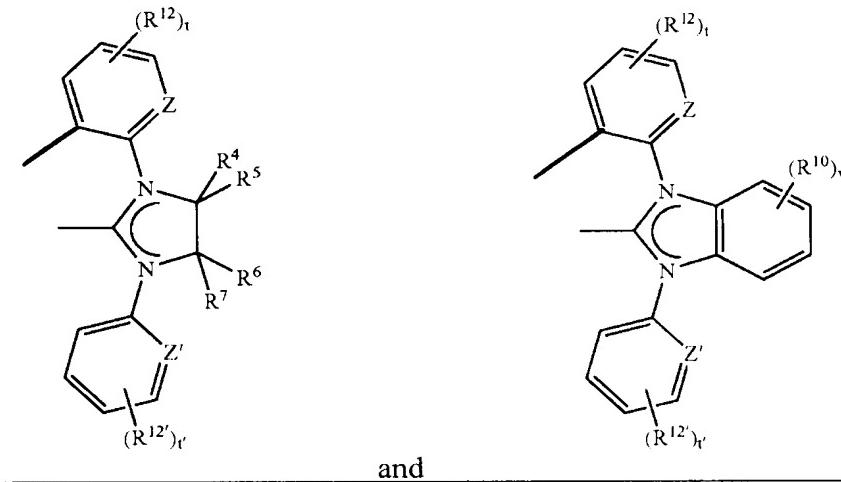
wherein the symbols have the following meanings:

$M^1$  is a metal atom selected from the group consisting of Co, Rh, Ir, Nb, Pd, Pt, Fe, Ru, Os, Cr, Mo, W, Mn, Tc, Re, Cu, Ag and Au in any oxidation state possible for the respective metal atom;

carbene is a carbene ligand selected from the group consisting of the following formulae



and



wherein Z, Z' are identical or different and are each CH or N;

R<sup>12</sup>, R<sup>12'</sup> are identical or different and are each an alkyl, aryl, heteroaryl or alkenyl radical, or 2 radicals R<sup>12</sup> or R<sup>12'</sup> together form a fused-on ring which may contain at least one heteroatom, or R<sup>12</sup> or R<sup>12'</sup> is a radical which acts as a donor or acceptor;

t and t' are identical or different and are each from 0 to 3, and when t or t' > 1 the radicals R<sup>12</sup> or R<sup>12'</sup> can be identical or different;

R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, and R<sup>7</sup> are each hydrogen, alkyl, aryl, heteroaryl or alkenyl or a radical which acts as a donor or acceptor;

R<sup>10</sup> is alkyl, aryl, heteroaryl or alkenyl or 2 radicals R<sup>10</sup> together form a fused-on ring which may contain at least one heteroatom, or R<sup>10</sup> is a radical which acts as a donor or acceptor; and

v is from 0 to 4 and when v is 0 the four carbon atoms of the aryl radical in the formula c which may be substituted by R<sup>10</sup> bear hydrogen atoms;

L is a monoanionic or dianionic ligand, which may be monodentate or bidentate;

K is an uncharged monodentate or bidentate ligand selected from the group consisting of phosphines; phosphonates and derivatives thereof, arsenates and derivatives thereof; phosphites; CO; pyridines; nitriles and conjugated dienes which form a  $\pi$  complex with M<sup>I</sup>;

n is the number of carbene ligands, wherein n is at least 1 and when n > 1 the carbene ligands in the complex of the formula I can be identical or different;

m is the number of ligands L, wherein m can be 0 or  $\geq 1$  and when m > 1 the ligands L can be identical or different;

o is the number of ligands K, wherein o can be 0 or  $\geq 1$  and when o > 1 the ligands K can be identical or different;

wherein the sum n + m + o is dependent on the oxidation state and coordination number of the metal atom and on the denticity of the ligands carbene, L and K and also on the charge on the ligands carbene and L, with the proviso that n is at least 1.

Claim 20 (Previously Presented): The organic light-emitting diode as claimed in claim 19, wherein the uncharged transition metal complexes are employed as emitter molecules.

Claim 21 (Cancelled)

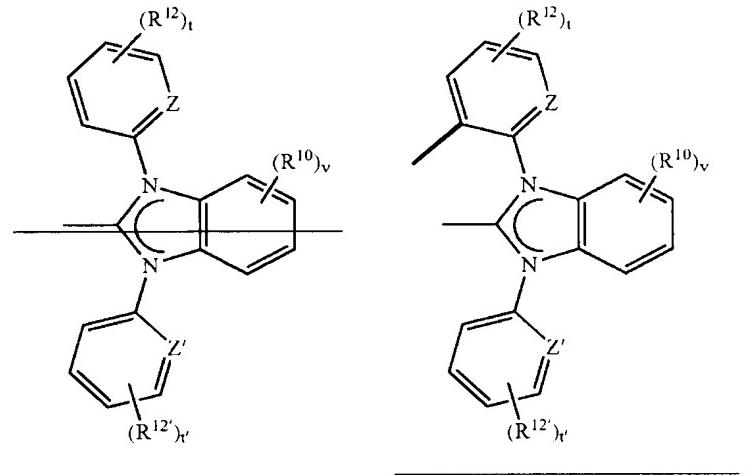
Claim 22 (Cancelled)

Claim 23 (Cancelled)

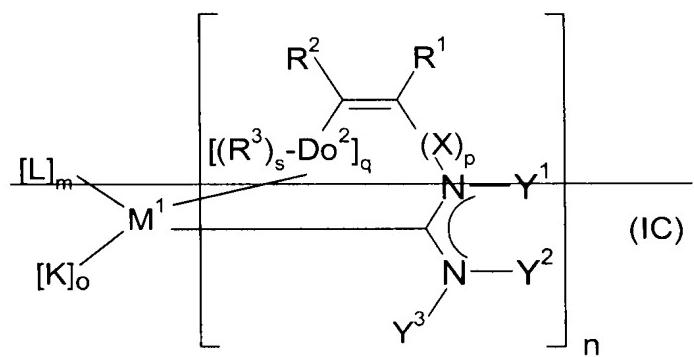
Claim 24 (Cancelled)

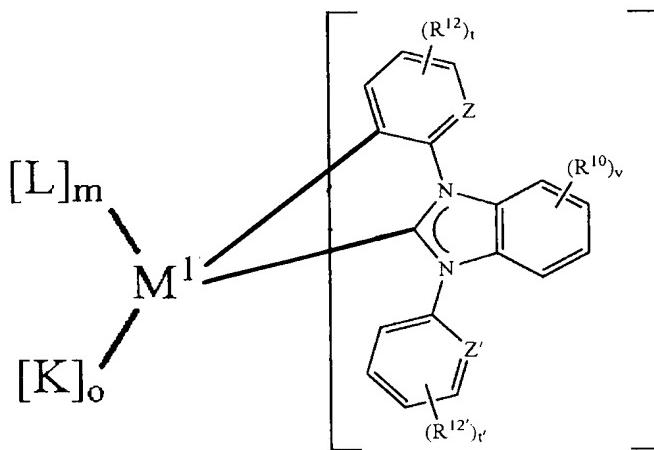
Claim 25 (Cancelled)

Claim 26 (Currently Amended): The organic light-emitting diode as claimed in claim 19, wherein the carbene ligand is:



Claim 27 (Currently Amended): An uncharged transition metal complex of the formula I<sub>n</sub>C<sub>m</sub>:





wherein the symbols have the following meanings:

$M^1$  is Ru, Rh, Ir, Pt in any oxidation state possible for the respective metal atom;

L is a monoanionic or dianionic ligand, which may be monodentate or bidentate;

K is an uncharged monodentate or bidentate ligand;

n is the number of carbene ligands, wherein n is at least 2 and the carbene ligands in the transition metal complex can be identical or different;

m is the number of ligands L, wherein m can be 0 or  $\geq 1$  and when  $m > 1$  the ligands L can be identical or different;

o is the number of ligands K, wherein o can be 0 or  $\geq 1$  and in the case of  $o > 1$  the ligands K can be identical or different;

wherein the sum  $n + m + o$  is dependent on the oxidation state and coordination number of the metal atom used and the denticity of the ligands and also on the charge on the ligands, with the proviso that n is at least 2; and

~~$D\sigma^2$  is a donor atom selected from the group consisting of C, N, P, O and S;~~

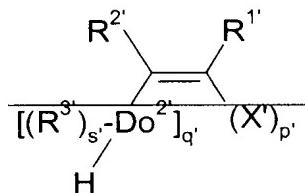
✓ ~~s is 2 when  $D\sigma^2$  is C, is 1 when  $D\sigma^2$  is N or P and is 0 when  $D\sigma^2$  is O or S;~~

~~X is a spacer selected from the group consisting of silylene, alkylene, arylene, heteroarylene and alkenylene;~~

~~p is 0 or 1;~~

~~q is 0 or 1;~~

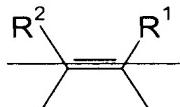
~~Y<sup>3</sup> is hydrogen or an alkyl, aryl, heteroaryl or alkenyl radical; or~~



~~wherein Do<sup>2', q', s', R<sup>3', R<sup>+</sup>, R<sup>2', X' and p' are each, independently of one another, as defined for Do<sup>2</sup>, q, s, R<sup>3</sup>, R<sup>+</sup>, R<sup>2</sup>, X and p;~~

~~R<sup>+</sup>, R<sup>2</sup> are each, independently of one another, hydrogen or an alkyl, aryl, heteroaryl or alkenyl radical, or~~

~~R<sup>+</sup> and R<sup>2</sup> together form a bridge having a total of from three to five atoms of which one or two atoms may be heteroatoms and the remaining atoms are carbon atoms, so that the group~~



~~forms a five- to seven-membered ring which may contain, in addition to the existing double bond, one further double bond or in the case of a six- or seven-membered ring two further double bonds and may be substituted by alkyl or aryl groups and may contain heteroatoms, or the ring is fused to further rings which may contain one or more heteroatoms;~~

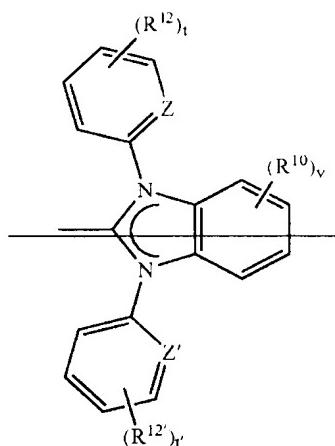
~~R<sup>3</sup> is hydrogen or an alkyl, aryl, heteroaryl or alkenyl radical; and~~

~~Y<sup>1</sup>, Y<sup>2</sup> together form a bridge between the nitrogen atoms N which has at least two atoms of which at least one is a carbon atom, wherein the bridge can be saturated or unsaturated and the two or more atoms of the bridge may be substituted or unsubstituted and~~

Reply to Office Action of January 7, 2010

~~when the bridge has two carbon atoms and is saturated at least one of the two carbon atoms is substituted,~~

~~and wherein the two or more carbene ligands are selected independently from carbene ligands of the formula:~~



wherein the following symbols have the following meanings:

Z, Z' are identical or different and are each CH or N;

R<sup>12</sup>, R<sup>12'</sup> are identical or different and are each an alkyl, aryl, heteroaryl or alkenyl radical, or 2 radicals R<sup>12</sup> or R<sup>12'</sup> together form a fused-on ring which may contain at least one heteroatom, or R<sup>12</sup> or R<sup>12'</sup> is a radical which acts as a donor or acceptor;

t and t' are identical or different and are each from 0 to 3, and when t or t' > 1 the radicals R<sup>12</sup> or R<sup>12'</sup> can be identical or different;

R<sup>10</sup> is alkyl, aryl, heteroaryl or alkenyl or 2 radicals R<sup>10</sup> together form a fused-on ring which may contain at least one heteroatom, or R<sup>10</sup> is a radical which acts as a donor or acceptor; and

v is from 0 to 4 and when v is 0 the four carbon atoms of the aryl radical in the formula c which may be substituted by R<sup>10</sup> bear hydrogen atoms.

Claim 28 (Cancelled)

Claim 29 (Cancelled)

Claim 30 (Cancelled)

Claim 31 (Previously Presented): The uncharged transition metal complex as claimed in claim 27, wherein M<sup>1</sup> is Ir(III), n is 3 and m and o are each 0, and wherein the three carbene ligands are identical.

Claim 32 (Previously Presented): A process for preparing transition metal complexes as claimed in claim 27 by the deprotonation of the ligand precursors corresponding to the appropriate carbene ligands and subsequent reaction with suitable metal complexes in which the desired metal is present.

Claim 33 (Previously Presented): An OLED comprising at least one transition metal complex as claimed in claim 27.

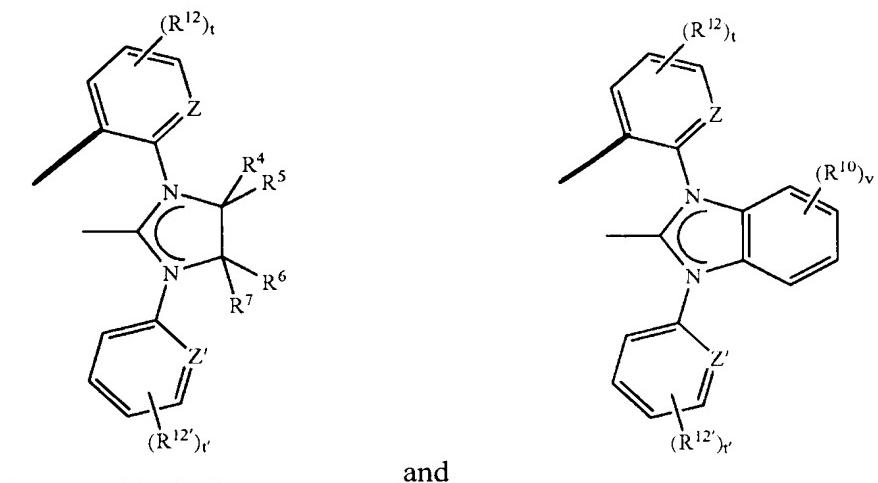
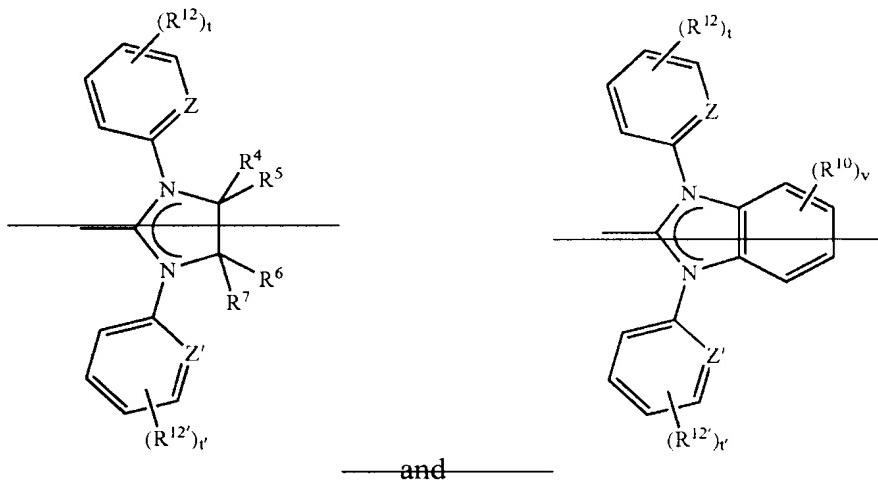
Claim 34 (Currently Amended): A light-emitting layer comprising at least one transition metal complex of the formula (I) comprising at least one carbene ligand



wherein the symbols have the following meanings:

$M^1$  is a metal atom selected from the group consisting of Co, Rh, Ir, Nb, Pd, Pt, Fe, Ru, Os, Cr, Mo, W, Mn, Tc, Re, Cu, Ag and Au in any oxidation state possible for the respective metal atom;

carbene is a carbene ligand selected from the group consisting of the following formulae



wherein Z, Z' are identical or different and are each CH or N;

R<sup>12</sup>, R<sup>12'</sup> are identical or different and are each an alkyl, aryl, heteroaryl or alkenyl radical, or 2 radicals R<sup>12</sup> or R<sup>12'</sup> together form a fused-on ring which may contain at least one heteroatom, or R<sup>12</sup> or R<sup>12'</sup> is a radical which acts as a donor or acceptor;

t and t' are identical or different and are each from 0 to 3, and when t or t' > 1 the radicals R<sup>12</sup> or R<sup>12'</sup> can be identical or different;

R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, and R<sup>7</sup> are each hydrogen, alkyl, aryl, heteroaryl or alkenyl or a radical which acts as a donor or acceptor;

R<sup>10</sup> is alkyl, aryl, heteroaryl or alkenyl or 2 radicals R<sup>10</sup> together form a fused-on ring which may contain at least one heteroatom, or R<sup>10</sup> is a radical which acts as a donor or acceptor; and

v is from 0 to 4 and when v is 0 the four carbon atoms of the aryl radical in the formula c which may be substituted by R<sup>10</sup> bear hydrogen atoms;

L is a monoanionic or dianionic ligand, which may be monodentate or bidentate;

K is an uncharged monodentate or bidentate ligand selected from the group consisting of phosphines; phosphonates and derivatives thereof, arsenates and derivatives thereof; phosphites; CO; pyridines; nitriles and conjugated dienes which form a  $\pi$  complex with M<sup>1</sup>;

n is the number of carbene ligands, wherein n is at least 1 and when n > 1 the carbene ligands in the complex of the formula I can be identical or different;

m is the number of ligands L, wherein m can be 0 or  $\geq 1$  and when m > 1 the ligands L can be identical or different;

o is the number of ligands K, wherein o can be 0 or  $\geq 1$  and when o > 1 the ligands K can be identical or different;

wherein the sum n + m + o is dependent on the oxidation state and coordination number of the metal atom and on the denticity of the ligands carbene, L and K and also on the charge on the ligands carbene and L, with the proviso that n is at least 1.

Claim 35 (Previously Presented): An OLED comprising a light-emitting layer as claimed in claim 34.

Claim 36 (Previously Presented): A device selected from the group consisting of stationary VDUs, VDUs in printers, kitchen appliances and advertising signs, lighting units, information signs, and mobile VDUs comprising an organic light-emitting diode as claimed in claim 19.

Claim 37 (Previously Presented): A light-emitting layer comprising at least one transition metal complex as claimed in claim 27.

Claim 38 (Previously Presented): An OLED comprising a light-emitting layer as claimed in claim 37.

Claim 39 (Previously Presented): A device selected from the group consisting of stationary VDUs, VDUs in printers, kitchen appliances and advertising signs, lighting units, information signs, and mobile VDUs comprising an OLED as claimed in claim 33.

Claim 40 (Previously Presented): A device selected from the group consisting of stationary VDUs, VDUs in printers, kitchen appliances and advertising signs, lighting units, information signs, and mobile VDUs comprising an OLED as claimed in claim 35.

Claim 41 (Previously Presented): A device selected from the group consisting of stationary VDUs, VDUs in printers, kitchen appliances and advertising signs, lighting units, information signs, and mobile VDUs comprising an OLED as claimed in claim 38.

Claim 42 (Currently Amended): The organic light-emitting diode as claimed in claim 19, wherein the carbene ligand is :

